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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/621,470 | 07/18/2003 | Wang-Rae Kim | P-0562 | 1139 |

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| EXAMINER | |
|---|---|
| SHINGLETON, MICHAEL B | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2817 | |

DATE MAILED: 02/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/621,470 | KIM, WANG-RAE | |
| | Examiner | Art Unit | |
| | Michael B. Shingleton | 2817 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *06 December 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-47* is/are pending in the application.

4a) Of the above claim(s) *2-5,12-17,22-27 and 32-35* is/are withdrawn from consideration.

5)☒ Claim(s) *18-21* is/are allowed.

6)☒ Claim(s) *1,11,28-31 and 36-47* is/are rejected.

7)☒ Claim(s) *6-10* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

Applicant's election with traverse of the species III in the reply filed on 12-06-2004 is acknowledged. The traversal is on the ground(s) that the search and examination could be made without serious burden. This is not found persuasive because the requirement was one of an election of species and accordingly "it is not necessary to show a separate status in the art or separate classification (See MPEP 808.01(a).

The requirement is still deemed proper and is therefore made FINAL.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 11, 28-31, and 36-47 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Wright et al. US2002/0044014 (Wright).

Figures 1-46 and the relevant text of Wright discloses an apparatus and method for reducing power amplifier distortion having a detector 116 that detects a temperature of the amplifier and a processor, i.e. DCSP 52 "Digital Compensation signal Processor" that clearly adjusts an input signal based on the fed back temperature signal of the amplifier. The predistorter 52 called a "predistorter kernel" is what modifies the input signal for AM-AM, AM-PM (phase/frequency), "the frequency dependent variation" and the "time hysteresis" (See paragraph [0273] and [0305]). The DCSP is also responsive to the input signal $V_m(t)$ and the output signal $Vm_{rf}(t)$ or $Vf_{rf}(t)$ to modify the input signal for AM-AM, AM-PM (phase/frequency), "the frequency dependent variation" and the "time hysteresis". Figure 1 of Wright clearly shows the digital nature of the controller and the pre-distorter. Wright specifically recites that the temperature signal is correlated with the input signal (See paragraph [0480]) and thus these two signals are compared in the broad sense in that input signal is examined with respect to the temperature signal. The element 52H is a composition of many look-up tables that are used to control the predistorter. All of these coefficients are stored in the series of look-up tables that make up elements like 52H in Wright. This includes the temperature compensation coefficients and the frequency compensation coefficients and the AM-AM and AM-PM coefficients. The input signal can be called a "training signal" as this signal causes the coefficients to be developed. Wright clearly senses the average

power levels and the instantaneous power levels and based upon at least these levels all the coefficients are generated including the frequency and temperature coefficients (See paragraph [0273], [0305] and the entire page 16). Note that a single coefficient can be composed of multiple coefficients. Also note that $Vf_{rf}(t)$ is fed back and compared to the input (See paragraph [0273] and [0305]) and since these signals change with time new compensation coefficients are generated. Also note that when the input is first applied, i.e. a training signal, the output of the amplifier is considered to be "pre-compensated" or "SID". Figures like Figure 7 shows how the instantaneous and average powers are used as an "address", i.e. a particular power corresponds to a particular point in one look-up table. Also note that in order to compensate for non-linear characteristics with a predistorter like that of Wright the predistorter must provide the inverse of the distortion no matter the source of the distortion (See paragraph [0285]). Thus Wright corrects for amplitude, phase, frequency and temperature either directly or indirectly.

Claims 6-10, objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 18-21 allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael B. Shingleton whose telephone number is (571)272-1770. The examiner can normally be reached on Tues-Fri from 8:30 to 4:30. The examiner can also be reached on alternate Fridays. The examiner normally has second Mondays of the bi-week off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal, can be reached on (571)272-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MBS
February 14, 2005

Michael B Shingleton
Primary Examiner
GROUP ART UNIT 2817